

**CLAIMS**

1. A method for measurement of high temperatures of a process stream by means of a thermocouple arranged in a thermowell, wherein the thermowell is at least partly covered by a layer of a catalytic material being active in at least one endothermic reaction.
2. Method according to claim 1, wherein tip of the thermowell is covered by the catalytic material with a layer thickness of 0.2-5mm, preferably 0.5-2.0mm.
3. Method according to claim 1, wherein the thermowell is installed in a reactor by inserting the thermowell through a hole penetrating reactor wall so that the tip of the thermowell is in contact with the process stream.
4. Method according to claim 3, wherein the tip of the thermowell is 20-50mm behind inner surface of the reactor wall.
5. Method according to claim 1, wherein the temperature is measured in a process stream undergoing a steam reforming reaction in a catalytic bed.
6. Method according to claim 5, wherein the temperature is measured upstream of the catalyst bed.
7. Method according to claim 5, wherein the steam reforming reaction is carried out in an autothermal reformer.

8. Method according to claim 1, wherein the catalytic material is active in catalysing steam reforming reactions.

9. Method according to claim 1,  
5 wherein the measured process stream has a temperature of 1000-1500°C

10. A temperature measurement instrument comprising a thermocouple inserted in a thermowell being at least partly  
10 covered by a layer of a catalytic material being active in at least one endothermic reaction.